

CLAIMS

1. Device for hot dip coating a metal strand (1), especially a steel strip, in which the metal strand (1) is passed vertically through a coating tank (3) that contains the molten coating metal (2) and through a guide channel (4) upstream of the coating tank (3), with at least two inductors (5) for inducing an electromagnetic field, which are installed on both sides of the metal strand (1) in the area of the guide channel (4) in order to keep the coating metal (2) in the coating tank (3), characterized by the fact that distance (d) between the walls (6) that bound the guide channel (4) is not constant in the direction (N) normal to the surface of the metal strand (1) in the region (H) of the vertical extent of the guide channel (4) between the lower end (7) of the guide channel (4) and the bottom (8) of the coating tank (3), such that the walls (6) that bound the guide channel (4) have a constriction (10) or an expansion (11).

2. Device in accordance with Claim 1, characterized by the fact that the cross section of the constriction (10) or the expansion (11) has essentially the form of a circular segment.

3. Device in accordance with Claim 1 or Claim 2, characterized by the fact that at least one flow deflection

element (12, 12', 12'', 13, 13') is arranged in the coating tank (3) and/or in the guide channel (4).

4. Device in accordance with Claim 3, characterized by the fact that the flow deflection element (12, 12', 12'', 13, 13') is designed as a flat, narrow plate, whose longitudinal axis (14) extends in the direction perpendicular to the direction of conveyance (R) of the metal strand (1) and perpendicular to the direction (N) normal to the surface of the metal strand (1).

5. Device in accordance with Claim 3 or Claim 4, characterized by the fact that the one or more flow deflection elements (13, 13') are arranged in the guide channel (4) in the region of the expansion (11).

6. Device in accordance with any of Claims 1 to 5, characterized by the fact that at least one bath relaxation plate (16) is arranged in the coating tank (3) near the surface (15) of the coating metal (2).

7. Device in accordance with Claim 6, characterized by the fact that the position of the bath relaxation plate (16) can be vertically adjusted by an actuator (17).

8. Device in accordance with Claim 6 or Claim 7, characterized by the fact that the bath relaxation plate (16) consists of ceramic material.

9. Device in accordance with Claim 8, characterized by the fact that the flow deflection element (12, 12', 12'', 13, 13') is designed as a flat, narrow plate, whose longitudinal axis (14) extends in the direction perpendicular to the direction of conveyance (R) of the metal strand (1) and perpendicular to the direction (N) normal to the surface of the metal strand (1).

10. Device in accordance with Claim 8 or Claim 9, characterized by the fact that the one or more flow deflection elements (13, 13') are arranged in the guide channel (4) in the region of the expansion (11).

11. Device in accordance with any of Claims 1 to 10, characterized by the fact that at least one bath relaxation plate (16) is arranged in the coating tank (3) near the surface (15) of the coating metal (2).

12. Device in accordance with Claim 11, characterized by the fact that the position of the bath relaxation plate (16) can be vertically adjusted by an actuator (17).

13. Device in accordance with Claim 11 or 12, characterized by the fact that the bath relaxation plate (16) consists of ceramic material.